

Response to the Final Office Action

10/030,461

In the Claims:

1. (CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars, comprising:

a hollow cylindrical body defining a longitudinal central axis and having an opening cover (2) at first and second ends thereof, a bolt hole (8) on the side wall, and a first supporting protrusion (5) and a second supporting ~~protrusions~~ protrusion (5) at first and second respective axial positions on an inner peripheral wall, said supporting protrusions extending in a direction substantially parallel to said axis, each being adapted to support a reinforcing bar inserted through one of said opening covers, wherein the portion of the inner peripheral wall between the first and second supporting protrusions is substantially linear;

each supporting protrusion (5) consists of a pair of thin-walled members, wherein the contact points of each of said thin-walled members with said peripheral wall define substantially parallel lines; and

said thin-walled members each have a ridge line (7) sloping relative to the peripheral inner wall, with the portion of each thin-walled member adapted for supporting the reinforcing bar (12) inserted through the opening cover (2) constituting the apex;

wherein said mortar grouting type joint defines an unobstructed space extending between the opening covers and aligned with said central axis, said space having a diameter at all points along a length of said joint that is equal to at least twice a distance between said central axis and apexes of said thin walled members.

2. (CANCELLED)

3. (CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein each of the pair of thin-walled members constituting the first supporting protrusion (5) ~~has an angle~~ a ridge line (7) sloping on both sides of the apexes of each of the thin walled members.

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3 ~~4.~~ (PREVIOUSLY PRESENTED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein the bolt hole (8) is situated between the first supporting protrusion (5) and one of the opening covers (2).

4 ~~8.~~ (PREVIOUSLY PRESENTED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein the bolt hole (8) is situated in the portion of the cylindrical body side wall facing to the first supporting protrusion (5).

5 ~~6.~~ (CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein:

the distance between the reinforcing bar supporting portions (6) of each pair of said thin-walled members is smaller than the diameter of a circular hole (3) in each opening cover; and

the distance between the reinforcing bar supporting portion (6) and the cylindrical body central axis is substantially equal to the radius of the circular hole (3) of the opening cover (2) on the same side of the joint as the supporting protrusion.

6 ~~7.~~ (PREVIOUSLY PRESENTED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein the bolt hole (8) is proximate and substantially opposite the apexes of one of the pairs of the thin walled members.

7 ~~8.~~ (PREVIOUSLY PRESENTED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein a line segment connecting the contact points of one of the pairs of thin-walled members and the cylindrical body inner wall is arranged perpendicularly to the thin-walled members, the pair of thin-walled members extending parallel to each other.

8 ~~9.~~ (CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein a line segment connecting the contact points of one of the pairs of said thin-walled members and the cylindrical body inner wall is arranged perpendicularly to the thin-walled members, the distance between the pair of thin-walled

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members increasing continuously from the reinforcing bar supporting portions (6) toward the opening cover (2) side of the hollow cylindrical body.

9 ~~10.~~ (CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein an angle made by a line segment connecting contact points of one of the pairs of said thin-walled members and the inner wall of the hollow cylindrical body and by the thin-walled members constitutes an acute angle.

10 ~~11.~~ (CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein an angle made by a line segment connecting the contact points of one of the pairs of said thin-walled members and the inner wall of the hollow cylindrical body and by the thin-walled members constitutes an acute angle, the distance between the pair of thin-walled members increasing continuously from the reinforcing bar supporting portions (6) toward an end of the hollow cylindrical body.

11 ~~12.~~ (PREVIOUSLY PRESENTED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein a first of the opening covers (2) comprises a circular hole adapted to receive a reinforcing bar (12) inserted into the joint.

12 ~~13.~~ (CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein a seal member mounting portion is integrally attached to the outer side of an said opening cover (2).

13 ~~14.~~ (PREVIOUSLY PRESENTED) A mortar grouting type joint for reinforcing bars according to claim 1, wherein facing surfaces of the pair of thin-walled members each have a dip angle which facilitates the guiding of the reinforcing bar (12).

15. (CANCELLED)

16. (CANCELLED)

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17.

(CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars comprising:

a hollow cylindrical body having an opening cover (2) at an end, a bolt hole (8) on the sidewall, and a supporting protrusion (5) on the inner peripheral wall, adapted to support a reinforcing bar (12), wherein:

the supporting protrusion (5) consists of a pair of thin-walled members extending longitudinally in the hollow cylindrical body; and

said thin-walled members each have a ridge line (7) sloping toward the inner peripheral wall with a portion of each said thin-walled member adapted to support the reinforcing bar (12) inserted through the opening cover (2) constituting the apex; and

wherein the bolt hole (8) is provided proximate a point on the sidewall that is substantially opposite a midpoint of a straight line connecting the apexes of said thin-walled members.

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(CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars, comprising:

a hollow cylindrical body having an opening cover (2) at an end, a bolt hole (8) on the sidewall, and a supporting protrusion (5) on the inner peripheral wall, adapted to support a reinforcing bar (12), wherein:

the supporting protrusion (5) consists of a pair of thin-walled members extending longitudinally in the hollow cylindrical body; and

said thin-walled members each have a ridge line (7) sloping toward the inner peripheral wall, with a portion of the thin-walled ~~member~~ members adapted to support the reinforcing bar (12) inserted through the opening cover (2) constituting the apex; and

wherein a line segment connecting the contact points of each of the thin-walled members and the cylindrical body inner wall is oriented substantially perpendicular to the thin-walled members, the pair of said thin-walled members extending parallel to each other.

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19.

(CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars, comprising:

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a hollow cylindrical body defining a longitudinal central axis and having an opening cover (2) at an end, a bolt hole (8) on a sidewall, and a supporting protrusion (5) on an inner peripheral wall, said supporting protrusion adapted to support a reinforcing bar (12), wherein:

the supporting protrusion (5) consists of a pair of thin-walled members extending in the longitudinal direction of the hollow cylindrical body; and

said thin-walled members each have a ridge line (7) sloping toward the inner peripheral wall, with a portion of each thin-walled member adapted to support a reinforcing bar (12) inserted through the opening cover (2) constituting the apex; and

wherein, the distance between the pair of said thin-walled members increases continuously from the apexes toward the opening cover (2).

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(CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars, comprising:

a hollow cylindrical body defining a longitudinal central axis having an opening cover (2) at an end, a bolt hole (8) on a sidewall, and a supporting protrusion (5) on an inner peripheral wall, the supporting protrusion being adapted to support reinforcing bars, wherein:

the supporting protrusion (5) consists of a pair of thin-walled members extending in the longitudinal direction of the hollow cylindrical body; and

said thin-walled members each decrease in height toward the opening cover (2), with a portion of each of the thin-walled members adapted to support the reinforcing bar (12) inserted through the opening cover (2) constituting the apex; and

wherein contact points of the pair of said thin-walled members with the inner wall define first and second substantially parallel lines, and wherein a line segment connecting said first and second lines lies at an acute angle relative to the thin-walled members.

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21.

(CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars, comprising:

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a hollow cylindrical body having an opening cover (2) at an end, a bolt hole (8) on a sidewall, and a supporting protrusion (5) on an inner peripheral wall, adapted to support a reinforcing bar (12), wherein:

the supporting protrusion (5) consists of a pair of thin-walled members extending in a longitudinal direction of the hollow cylindrical body; and

said thin-walled members each include an apex adapted to support a reinforcing bar inserted through the opening cover (2) and have a ridge line (7) sloping from the apex toward the inner peripheral wall; and

wherein contact points of each of the pair of said thin-walled members and the inner peripheral wall define first and second lines separated by a distance that increases in a direction from the apexes toward the opening cover (2), and wherein a line segment connecting the first and second lines lies at an acute angle relative to the thin-walled portions.

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22.

(CURRENTLY AMENDED) A mortar grouting type joint for reinforcing bars, comprising:

a hollow cylindrical body defining a central axis and having an opening cover (2) at an end, a bolt hole (8) on a sidewall, and a supporting protrusion (5) on an inner peripheral wall, adapted to support a reinforcing bar (12), wherein:

the supporting protrusion (5) consists of a pair of thin-walled members extending in the hollow cylindrical body in a direction substantially parallel said central axis; and

said thin-walled members each have a ridge line (7) sloping toward the inner peripheral, with a portion of the thin-walled ~~member~~ members adapted to support the reinforcing bar (12) inserted through the opening cover (2) constituting the apex; and

wherein a seal member mounting portion is integrally attached to the outer side of the opening cover (2).